UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,704	02/16/2006	Karlheinz Bortlik	3712036.00706	4852

29157 7590 08/08/2011

K&L Gates LLP
P.O. Box 1135
CHICAGO, IL 60690

EXAMINER	
MI, QIUWEN	

ART UNIT	PAPER NUMBER
1655	

NOTIFICATION DATE	DELIVERY MODE
08/08/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

chicago.patents@klgates.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KARLHEINZ BORTLIK, ELIANE DURUZ,
ERIC KOLODZIEJCZYK,
and MARIE-ROSE FERNANDEZ-GRAF

Appeal 2011-003313
Application 10/568,704
Technology Center 1600

Before TONI R. SCHEINER, DEMETRA J. MILLS, and
JEFFREY N. FREDMAN, Administrative Patent Judges.

FREDMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a natural lycopene concentrate. The Examiner rejected the claims as indefinite and as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Statement of the Case

Background

"Lycopene is a natural pigment . . . It is known for its bioactive properties, and in particular for its antioxidant role." (Spec. 1, ll. 6-10.)

The Claims

Claims 1, 3-5 and 9-11 are on appeal. Claim 1 is representative and reads as follows:

> 1. A natural lycopene concentrate that is water-soluble at room temperature comprising at least 1 mg of lycopene per g of the said concentrate, not more than 30% proteins, not more than 30% polysaccharides, not more than 10% organic acids, and at least 30% of lipid compounds, wherein the concentrate is ingestible, in powder form and isolated from fibers and other insoluble compounds by solid-liquid separation, and wherein the concentrate is extracted from a lycopene-containing material without using a solvent.

The issues

A. The Examiner rejected claims 1, 3-5, and 9-11 under 35 U.S.C. § 112, second paragraph (Ans. 3-4).

B. The Examiner rejected claims 1, 3-5, and 9-11 under 35 U.S.C. § 103(a) as obvious over Kesharlal[1] (Ans. 4-6).

A. 35 U.S.C. § 112, second paragraph

The Examiner finds that the "term 'natural lycopene concentrate' in claims 1, and 9-11 is a relative term which renders the claim indefinite. The term 'natural' is not defined by the claims, the specification does not provide

---

[1] Kesharlal et al., US 6,224,876 B1, issued May 1, 2001.

a standard for ascertaining the requisite degree" (Ans. 3). The Examiner finds that Appellants' Specification "recites 'The supernatant is recovered and its pH is adjusted to 7 with NaOH' (lines 5-10). Since NaOH does not exist in nature in tomato, it is not clear whether the product could still be called "natural lycopene concentrate'" (id. at 3-4).

Appellants contend that "the skilled artisan would immediately appreciate that a 'natural' lycopene concentrate is a lycopene concentrate that has not be subjected to technological treatments that would modify its native characteristics" (App. Br. 12). Appellants contend that "the specification clearly defines a 'natural' lycopene concentrate as a lycopene concentrate that 'has only been subjected to technological treatments which do not modify its native characteristics'" (id.).

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that claim 1 is indefinite?

Findings of Fact

1. The Specification teaches that the "aim of the present invention is to provide a 'natural' product with increased bioavailability, that is to say that the product has only been subjected to technological treatments which do not modify its native characteristics" (Spec. 2, ll. 4-8).

2. The Specification teaches that "the concentrate is a lycopene powder which is water-soluble at room temperature, this being without using a solvent during the process in order to preserve the natural nature of the product in order to provide the consumer with a concentrate with a high bioactivity" (Spec. 3, ll. 27-32).

3. The Specification teaches that it "is possible to treat the said liquid by adding calcium in order to obtain a gel because this addition will have the effect of a gelling of the polysaccharides" (Spec. 5, ll. 2-5).

4. The Specification teaches that the "paste is alkalinized with demineralized water and a base of the NaOH type until a pH of between 6 and 9 is obtained" (Spec. 5, ll. 15-17).

5. The Specification teaches that after boiling the paste and a solid-liquid separation, the "filtrate recovered is a solution containing dispersed lycopene. It is acidified with an acid of the citric acid type to a pH of between 3.5 and 5 and more preferably between 4 and 4.5" (Spec. 5, ll. 19-31).

6. The Specification teaches that the "present invention relates to a natural lycopene concentrate, which is water-soluble at room temperature while lycopene was up until now fat-soluble. This water-solubility is obtained without adding surfactants" (Spec. 2, ll. 15-19).

7. The Specification teaches that the "lycopene is now water-soluble because it has formed a complex with proteins of the medium and with polysaccharides" (Spec. 6, ll. 4-6).

Principles of Law

The test for definiteness under 35 U.S.C. § 112, second paragraph, is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576 (Fed. Cir. 1986) (citations omitted).

In Miyazaki, the Board stated that

> rather than requiring that the claims are insolubly ambiguous, we hold that if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite.

Ex parte Miyazaki, 89 USPQ2d 1207, 1211 (BPAI 2008).

Analysis

The dispute centers over whether the term "natural lycopene concentrate" is definite. The Specification provides a definition of "natural" teaching that the "aim of the present invention is to provide a 'natural' product with increased bioavailability, that is to say that the product has only been subjected to technological treatments which do not modify its native characteristics" (Spec. 2, ll. 4-8; FF 1).

Therefore the touchstone for whether a lycopene concentrate is "natural" according to Appellants' Specification is whether native characteristics of the lycopene have been altered.

The Specification teaches that the "lycopene was up until now fat-soluble" (Spec. 2, ll. 15-19; FF 6). Thus, the Specification suggests that one native characteristic of lycopene is that it is fat-soluble, not water soluble (FF 6).

After a series of chemical and physical processes treating the lycopene containing product (see FF 3-5), the Specification teaches that the "lycopene is now water-soluble because it has formed a complex with proteins of the medium and with polysaccharides" (Spec. 6, ll. 4-6; FF 7).

The Specification teaches that the resultant lycopene is no longer fat-soluble, but rather is water soluble (FF 7).

This change from fat solubility to water solubility directly contradicts the definition laid out in the Specification that "natural" only refers to treatments which do not modify its native characteristics (FF 1). Here, a native characteristic of lycopene, that it is soluble in fat (FF 6), has been altered so that the lycopene is soluble in water (FF 7). Thus, the definition of "natural" in the Specification (FF 1) is contradicted by the change in behavior of the lycopene as taught in the Specification (FF 2-7).

Therefore, consistent with Miyazaki, at least two interpretations of "natural" are possible. A first interpretation is where "natural" is interpreted so that the treatments do not modify native characteristics such as solubility in fat or water as per the definition in the Specification (FF 1). A second, different, interpretation is where "natural" is interpreted to permit manipulations which modify the native characteristic of solubility in fat or water, which is the actual result performed by the Specification (FF 7). The presence of two reasonable but inconsistent interpretations of "natural" in light of the Specification supports the conclusion that the term "natural" is indefinite in this limited and unusual fact pattern.

Appellants "submit that when the claims are read in view of the specification, the skilled artisan would immediately appreciate that using NaOH to alkalinze [sic] a lycopene-containing composition, or acidifying a filtrate prior to centrifugation clearly does not change the native characteristics of the ultimate lycopene-containing composition" (App. Br. 13).

We are not persuaded, since the lycopene is changed from fat soluble to water soluble, which is reasonably understood as a change in the native characteristic of lycopene (FF 6-7).

Conclusion of Law

The evidence of record supports the Examiner's conclusion that claim 1 is indefinite.

B. 35 U.S.C. § 103(a) over Kesharlal

The Examiner finds that

> Kesharlal et al teach fresh hard, good quality reddish colored "Desi Red" carrots . . . were selected and washed thoroughly with water. The sorted and washed carrots (1.0 kg) were subjected to crushing in a fruit mill to provide a comminution which was subjected to pressing through a filter press for the purpose of separating the pulp from the juice to provide a juice (ca. 600 ml) (thus water soluble at room temperature, thus the concentrate is extracted form a lycopene-containing material without using a solvent, thus a solid-liquid separation). To the juice, 3 g of adipic acid was added with stirring (thus not more than 10% organic acid). To the resulting mixture was added 60 g of sorbitol and the mixture was subjected to centrifuging to provide paste (ca. 17.2 g). The paste was dried under high vacuum. Pulverizing of the solid material and sieving gave the carotenoid powder (thus ingestible, thus in a powder form) of the invention

(Ans. 4-5).

The Examiner finds that "though Kesharlal et al do not explicitly teach not more than 30% protein, in Example 3, Kesharlal et al teach the protein range from different supplies contain 10-50% protein" (id. at 5). The Examiner finds it obvious "to choose a particular protein content carrot from different carrot species or supplier" (id. at 6).

Appellants contend that "Kesharlal fails to disclose or suggest natural lycopene concentrates comprising at least 1 mg of lycopene per g of the said concentrate, not more than 30% proteins, not more than 30% polysaccharides, not more than 10% organic acids, and at least 30% of lipid compounds" (App. Br. 15). Appellants contend that "[a]t best, Kesharlal discloses a composition containing 10-50 g proteins per 100 g of isolated powder for carrots. See, Kesharlal, column 4, lines 27-39. Every specific example in Kesharlal, other than the range of amounts for carrots, uses an amount of proteins that is greater than 30%" (id.).

Appellants "submit that the skilled artisan would have no reason to modify Kesharlal to arrive at the present claims because Kesharlal teaches away from the present claims" (id. at 16). Appellants contend that "Kesharlal clearly discloses that protein amounts in the range of 30-50% are acceptable. However, this is in direct contrast to the present claims that explicitly require 'no more than 30% proteins.' As such, the disclosure of Kesharlal clearly teaches away from the present claims" (id.). Appellants "submit that such an explicit disparagement is not required in order for a reference to teach away from a claimed invention" (id.).

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that Kesharlal renders claim 1 obvious?

Findings of Fact

8. Kesharlal teaches that

> "Desi Red" carrots with a smooth surface, excluding those that were found defective, were selected and washed thoroughly with water. The sorted and washed carrots (1.0 kg) were subjected to crushing in a fruit mill to provide a comminution which was subjected to pressing through a

> filter press for the purpose of separating the pulp from the juice to provide a juice (ca. 600 ml). To the juice, 3 g of adipic acid was added with stirring. To the resulting mixture was added 60 g of sorbitol and the mixture was subjected to centrifuging to provide paste (ca. 17.2 g). The paste was dried under high vacuum. Pulverizing of the solid material and sieving gave the carotenoid powder of the invention

(Kesharlal, col. 7, ll. 54-65).

9. The Examiner reasonably finds that the extraction detailed above was performed without a solvent and by solid liquid separation (see Ans. 5).

10. Kesharlal teaches the "[c]omposition per 100 g Product from 'Desi Red' Carrots (Example 1)

beta-Carotene	530 mg
alpha-Carotene	27 mg
Lycopene	700 mg
Lutein/Xanxanthin	15 mg
Total Carotenoids	3750 mg
Protein	32.8 g
Carbohydrates	4 g
Phosphorus	647 mg
Lipids	15.3 g
Vitamin C	22 mg
Vitamin B1	5 mg
Vitamin B2	1 mg
Iron	98 mg
Zinc	1 mg
Manganese	1 mg
Magnesium	162 mg
Calcium	1.381 g
Potassium	1.99 g
Sodium	1.99 g
Total Minerals (Ash value)	6.87 g

"

(Kesheral, col. 8, ll. 1-21).

11. Kesharlal teaches that the composition of Example 1 has 700 mg of lycopene per 100 g of product "(thus 7 mg/g; thus at least 1 mg of

lycopene per g)" (see FF 10, Ans. 5). Kesharlal also teaches that the composition of Example 2 has 30.3 % lipid (see Kesharlal, col. 9, l. 40; Ans. 5).

12. Kesharlal teaches ranges for each component in Example 3 as reproduced below:

Beta-Carotene	300~4000	mg
alpha-Carotene	10~300	mg
Lycopene	10~2000	mg
Lutein/Xanthin	5~50	mg
Total Carotenoids	250~5000	mg

Proteins	10~50	g
Carbohydrates	1~25	
Phosphorus	0.1~1	g
Lipids	20~40	g
Vitamin C	10~500	mg
Vitamin B1	1~6	mg
Vitamin B2	0.5~4	mg
Iron	5~100	mg
Zinc	1~5	mg
Manganese	0.1~1	mg
Magnesium	50~900	mg
Calcium	0.5~3	g
Potassium	1~4	g
Sodium	1~3	g
Total Minerals (Ash value)	3~35	g

The table in Example 3 provides specific ranges of compositions from carrots (Kesharlal, col. 8, l. 60 to col. 9, l. 15).

13. Kesharlal teaches that the range of lycopene in carrots is from 10 to 2000 mg per 100 g product (or 0.1 to 20 mg per g) (FF 12).

14. Kesharlal teaches that the range of lipids in carrots is from 20 to 40 g per 100 g product or 20 to 40% (FF 12).

15. Kesharlal teaches that the range of proteins in carrots is from 10 to 50 g per 100 g product or 10 to 50% (FF 12).

Principles of Law

"The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). "If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability." Id. at 417. As noted by the Court in KSR, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." 550 U.S. at 421.

> In cases involving overlapping ranges, we and our predecessor court have consistently held that even a slight overlap in range establishes a prima facie case of obviousness ….
> Selecting a narrow range from within a somewhat broader range disclosed in a prior art reference is no less obvious than identifying a range that simply overlaps a disclosed range. In fact, when, as here, the claimed ranges are completely encompassed by the prior art, the conclusion is even more compelling than in cases of mere overlap. The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.

In re Peterson, 315 F.3d 1325, 1329-1330 (Fed. Cir. 2003).

Analysis

Kesharal teaches a concentrate with at least 1 mg of lycopene per g (FF 10-11) which does not have more than 30% polysaccharides (FF 11-12) and at least 30% lipid (FF 11) and which is ingestible, in powder form, and isolated by solid-liquid separation without using a solvent (FF 8-9).

Kesharal exemplifies ranges of compositions including 10-50% protein (FF 12, 15). Applying the Peterson standard of obviousness of ranges to the findings of fact, we conclude that an ordinary artisan would have reasonably found it obvious to select a range of protein content from 10 to 30% in Kesharlal since Peterson teaches that "even a slight overlap in range establishes a prima facie case of obviousness." Peterson, 315 F.3d at 1329. Here, where the prior art range for percent of protein substantially and almost completely overlaps the claimed range, Peterson suggests that the obviousness conclusion is even more compelling. See Peterson, 315 F.3d at 1330.

Appellants contend that "[a]t best, Kesharlal discloses a composition containing 10-50 g proteins per 100 g of isolated powder for carrots. See, Kesharlal, column 4, lines 27-39. Every specific example in Kesharlal, other than the range of amounts for carrots, uses an amount of proteins that is greater than 30%" (App. Br. 15).

We are not persuaded. Example 3 provides a specific teaching of actual carrots with ranges of proteins between 10 and 50% (FF 12, 15). With this specific teaching of a range of proteins, selection of the particular values claimed by Appellants from within that range reasonably establishes a prima facie case of obviousness, consistent with Peterson, 315 F.3d at 1329. Appellants have provided no evidence to rebut the prima facie case of obviousness.

Appellants contend that "Kesharlal clearly discloses that protein amounts in the range of 30-50% are acceptable. However, this is in direct contrast to the present claims that explicitly require 'no more than 30%

proteins.' As such, the disclosure of Kesharlal clearly teaches away from the present claims" (App. Br. 16). Appellants "submit that such an explicit disparagement is not required in order for a reference to teach away from a claimed invention" (id.).

We are not persuaded. Appellants' statement incorrectly characterizes the law and facts. In Dystar, the court found that "[w]e will not read into a reference a teaching away from a process where no such language exists." DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co., 464 F.3d 1356, 1364 (Fed. Cir. 2006). In accord is Fulton, where the court found that the "prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed." In re Fulton, 391 F.3d 1195, 1201 (Fed. Cir. 2004).

Thus, for the prior art to teach away, there must be some explicit teaching which criticizes, discredits, or somehow discourages the obvious solution. Appellants have not identified, nor do we find, such a teaching in Kesharlal. The teaching that protein levels in the amount of 30-50% are acceptable is not a teaching away. Instead, the broader teaching of 10-50% protein content renders the claims prima facie obvious according to Peterson, 315 F.3d at 1329. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or non-preferred embodiments. See In re Susi, 440 F.2d 442, 446 n.3 (CCPA 1971).

Conclusions of Law

The evidence of record supports the Examiner's conclusion that Kesharlal renders claim 1 obvious.

SUMMARY

In summary, we affirm the rejection of claim 1 under 35 U.S.C. § 112, second paragraph. Pursuant to 37 C.F.R. § 41.37(c)(1), we also affirm the rejection of claims 3-5, and 9-11, as these claims were not argued separately.

We affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Kesharlal. Pursuant to 37 C.F.R. § 41.37(c)(1), we also affirm the rejection of claims 3-5, and 9-11, as these claims were not argued separately.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

cdc